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TO: Ralph J Gitomer **Location: 3d65/3c18** **Art Unit: 1655** **Wednesday, August 10, 2005** **Case Serial Number: 10/686674**	**From: Noble Jarrell** **Location: Biotech-Chem Library** **Rem 1B71** **Phone: 272-2556** **Noble.jarrell@uspto.gov**

Search Notes

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=> d his

     (FILE 'HOME' ENTERED AT 13:34:40 ON 10 AUG 2005)

     FILE 'HCAPLUS' ENTERED AT 13:36:03 ON 10 AUG 2005
L1           1 (US2004132128 OR US6770434 OR US2002086329)/PN

     FILE 'REGISTRY' ENTERED AT 13:36:59 ON 10 AUG 2005

     FILE 'HCAPLUS' ENTERED AT 13:37:01 ON 10 AUG 2005

     FILE 'REGISTRY' ENTERED AT 13:37:01 ON 10 AUG 2005

     FILE 'WPIX' ENTERED AT 13:37:04 ON 10 AUG 2005
L2           2 L1

=> b hcap
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=> d all l1 tot

L1   ANSWER 1 OF 1  HCAPLUS  COPYRIGHT 2005 ACS on STN
AN   2002:505299  HCAPLUS
DN   137:43884
ED   Entered STN:  05 Jul 2002
TI   Biological assays and biochips mirroring in vivo situations
IN   Shvets, Igor; Kashanin, Dmitriy; Kelleher, Dermot; Williams, Vivienne;
     Volkov, Yuri
PA   The Provost, Fellows and Scolars of the College of the Holy & Undevided
     Trinity of Queen Elizabeth near Dublin, Ire.
SO   U.S. Pat. Appl. Publ., 40 pp.
     CODEN: USXXCO
DT   Patent
LA   English
IC   ICM  G01N033-53
     ICS  G01N033-567; H01L021-00; B05D003-00
INCL 435007100
CC   9-1 (Biochemical Methods)
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
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PI   US 2002086329        A1    20020704    US 2000-750348         20001229 <--
     US 6770434           B2    20040803
     EP 1221617           A2    20020710    EP 2001-650155         20011231
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            IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
    EP 1252929          A2    20021030    EP 2002-17036          20020725
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            IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
    WO 2003060056       A2    20030724    WO 2002-IE107          20020726
    WO 2003060056       A3    20040226
    WO 2003060056       C1    20050106
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            CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
            GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
            LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
            PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
            UA, UG, US, UZ, VN, YU, ZA, ZM, ZW
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    EP 1461414          A2    20040929    EP 2002-751579         20020726
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    US 2004132128       A1    20040708    US 2003-686674         20031017 <--
PRAI US 2000-750348     A     20001229
    EP 2001-650155      A3    20011231
    EP 2002-17036       A     20020725
    WO 2002-IE107       W     20020726
CLASS
 PATENT NO.       CLASS  PATENT FAMILY CLASSIFICATION CODES
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 US 2002086329    ICM    G01N033-53
                  ICS    G01N033-567; H01L021-00; B05D003-00
                  INCL   435007100
 US 2002086329    NCL    435/004.000; 422/058.000
                  ECLA   B01L003/00C6M                                  <--
 EP 1221617       ECLA   B01L003/00C6M
 EP 1252929       ECLA   B01L003/00C6M
 US 2004132128    NCL    435/040.500
                  ECLA   B01L003/00C6M                                  <--
AB   Biol. assays using various constructions of biochips are disclosed to
     mirror in vivo situations. The biochip comprises a microchannel having a
     liquid outlet port, bubble release port and a liquid outlet port with an
     associated bubble release port. A multiplicity of tests can be performed
     often by coating the bore of the microchannel with various adhesion
     mediating proteins or chemoattractants. The assay assembly comprises a
     syringe pump feeding the biochip. An inverted microscope, digital camera
     and recorder are provided. A sample liquid containing cells in suspension is
     injected slowly through the biochip and the effect of the assay recorded
     over a long period.
ST   bioassay biochip; adhesion protein biochip; chemoattractant biochip
IT   Adhesion, biological
     Animal tissue culture
     Bioassay
     Cell
     Cell migration
     Coating materials
     Diffusion
     Flow
     Microarray technology
     Plastic films
        (biol. assays and biochips mirroring in vivo situations)
IT   Reagents
     RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
        (biol. assays and biochips mirroring in vivo situations)
IT   Polysiloxanes, uses
     RL: DEV (Device component use); NUU (Other use, unclassified); TEM
     (Technical or engineered material use); USES (Uses)
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(biol. assays and biochips mirroring in vivo situations)
IT Plastics, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(biol. assays and biochips mirroring in vivo situations)
IT Chemotactic factors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(chemoattractants; biol. assays and biochips mirroring in vivo situations)
IT Blood vessel
(endothelium, internal bore of biochip coated with cells of; biol. assays and biochips mirroring in vivo situations)
IT Proteins
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); DEV (Device component use); TEM (Technical or engineered material use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(extracellular matrix-associated, internal bore of biochip coated with; biol. assays and biochips mirroring in vivo situations)
IT Animal cell
(internal bore of biochip coated with; biol. assays and biochips mirroring in vivo situations)
IT Proteins
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); DEV (Device component use); TEM (Technical or engineered material use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(internal bore of biochip coated with; biol. assays and biochips mirroring in vivo situations)
IT Flow
(laminar, multilaminar; biol. assays and biochips mirroring in vivo situations)
IT Samples
(liquid; biol. assays and biochips mirroring in vivo situations)
IT Pipes and Tubes
(microchannels; biol. assays and biochips mirroring in vivo situations)
IT Hydrophobicity
(of coating; biol. assays and biochips mirroring in vivo situations)
IT Extracellular matrix
(transmigration assay to determine cell migration from endothelium to; biol. assays and biochips mirroring in vivo situations)
IT Endothelium
(vascular, internal bore of biochip coated with cells of; biol. assays and biochips mirroring in vivo situations)
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Akong; US 5670113 A 1997 HCAPLUS
(2) Berens; US 5998160 A 1999
(3) Buechler; US 5679526 A 1997 HCAPLUS
(4) Buechler; US 5939272 A 1999 HCAPLUS
(5) Buechler; US 5985579 A 1999 HCAPLUS
(6) Cubicciotti; US 6287765 B1 2001 HCAPLUS
(7) Fedun; US 5578492 A 1996
(8) Fuhr; US 6113768 A 2000
(9) Goodwin; US 5284753 A 1994
(10) Goodwin; US 5302515 A 1994 HCAPLUS
(11) Guirguis; US 4912057 A 1990
(12) Kalland; US 6042837 A 2000 HCAPLUS
(13) Kellogg; US 6063589 A 2000 HCAPLUS
(14) Lemonnier; US 4912037 A 1990
(15) Lockhart; US 5556752 A 1996 HCAPLUS
(16) Parce; US 6042709 A 2000 HCAPLUS
(17) Springer; US 5514555 A 1996 HCAPLUS
(18) Steel Adam; The Flow Thru Chip: A three Dimensional Biochip Platform. Microarray Biochip Technology 2000, P87
(19) Swedberg; US 5571410 A 1996 HCAPLUS
(20) Taylor; US 6103479 A 2000 HCAPLUS
(21) Tchao; US 5601997 A 1997 HCAPLUS

(22) Valkirs; US 4727019 A 1988 HCAPLUS
(23) Vande Woude; US 5645988 A 1997 HCAPLUS
(24) Yager; US 5932100 A 1999
(25) Yamauchi; US 5723345 A 1998 HCAPLUS
(26) Yen-Maguire; US 5543327 A 1996

=> b wpix

FILE 'WPIX' ENTERED AT 13:37:57 ON 10 AUG 2005
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FILE LAST UPDATED: 5 AUG 2005 <20050805/UP>
MOST RECENT DERWENT UPDATE: 200550 <200550/DW>
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FOR DETAILS. <<<
'BIX BI,ABEX' IS DEFAULT SEARCH FIELD FOR 'WPIX' FILE

=> d all l2 tot

L2 ANSWER 1 OF 2 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2004-602109 [58] WPIX
CR 2002-690182 [74]
DNN N2004-649300 DNC C2004-286199
TI Assay for animal, human and plant cells, comprises delivering a sample liquid of a suspension of cells at a controlled steady flow rate through a biochip, in the form of an elongate enclosed microchannel with an internal bore.
DC A89 B04 D16 S03
IN KASHANIN, D; KELLEHER, D; SHVETS, I; VOLKOV, Y; WILLIAMS, V
PA (QUEE-N) QUEEN ELIZABETH COLLEGE DUBLIN
CYC 1
PI US 2004132128 A1 20040708 (200458)* 39 G01N001-30 <--
ADT US 2004132128 A1 Cont of US 2000-750348 20001229, US 2003-686674 20031017
PRAI US 2000-750348 20001229; US 2003-686674 20031017
IC ICM G01N001-30
AB US2004132128 A UPAB: 20041223
NOVELTY - A biological assay comprises:
(a) delivering a sample liquid of a suspension of cells at a controlled steady flow rate through a biochip (50), in the form of an elongate enclosed microchannel (51);
(b) causing an externally generated test to be carried out on the sample liquid as it is delivered through the biochip; and
(c) examining the sample liquid to observe the effect of the test on the sample.
DETAILED DESCRIPTION - A biological assay comprises:

(a) delivering a sample liquid of a suspension of cells at a controlled steady flow rate through a biochip (50), in the form of an elongate enclosed microchannel (51) with an internal bore;

(b) causing an externally generated test to be carried out on the sample liquid as it is delivered through the biochip; and

(c) examining the sample liquid over time to observe the effect of the test on the sample.

An INDEPENDENT CLAIM is also included for a biochip comprising:

(i) an elongate main microchannel;

(ii) an inlet port (1) mounted on the proximal end of the main microchannel;

(iii) an outlet port (4) adjacent its distal end;

(iv) a separate liquid feeder microchannel connected to the main microchannel, the feeder microchannel having an inlet port; and

(v) an outlet feeder port connecting the feeder microchannel and the main microchannel.

USE - The invention is for biological assay method of animal cells or human cells, and plant cells. It is useful for microbiology, pharmacy, medicine, biotechnology, and environmental and materials science. It is used in the field of drug discovery and combinatorial chemistry.

ADVANTAGE - A variety of tests can be carried out. Since the tests occur over relatively long periods of time, it is possible to use one microscope to carry out a multiplicity of examinations, as it is usually only necessary to have the activities recorded at discrete time intervals. The invention mimics in vivo testing. With the invention, there is a constant flow of cells, and drug candidate, together with the micro capillary under observation produces much more accurate statistical results. Relatively small volumes of blood can be used for analysis in hospitals. The biochips are disposable. The invention results in a fast and accurate process. Since the biochips are fabricated from a plastics material, it is considerably less expensive than, e.g. silicone micro-machining, which is often used at present for microchips. Using plastics material for biochip enables real-time monitoring with relative ease, by use of an inverted microscope.

DESCRIPTION OF DRAWING(S) - The figure is a plan view of a biochip.

Inlet port 1
Outlet port 4
Biochip 50
Microchannel 51
Base sheet 52
Dwg.1/26

FS CPI EPI
FA AB; GI
MC CPI: A12-L04B; A12-V; A12-W11L; B04-C03; B04-F01; B04-N04; B11-C08E6; B12-K04; D05-H09; D05-H10
EPI: S03-E14H; S03-E14J; S03-E15

L2 ANSWER 2 OF 2 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2002-690182 [74] WPIX
CR 2004-602109 [58]
DNN N2002-544402 DNC C2002-195034
TI Biological assay, by delivering cell sample at controlled steady flow rate through biochip, causing externally generated test to be carried out on sample liquid, and examining sample to observe the effect of test.
DC A96 B04 C06 D16 P42 S03 S05
IN KASHANIN, D; KELLEHER, D; SHVETS, I; WILLIAMS, V; VOLKOV, Y
PA (QUEE-N) QUEEN ELIZABETH COLLEGE DUBLIN; (KASH-I) KASHANIN D; (KELL-I) KELLEHER D; (SHVE-I) SHVETS I; (VOLK-I) VOLKOV Y; (WILL-I) WILLIAMS V
CYC 101
PI US 2002086329 A1 20020704 (200274)* 40 G01N033-53 <--
EP 1221617 A2 20020710 (200274) EN G01N033-543
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR
EP 1252929 A2 20021030 (200279) EN B01L003-00
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

WO 2003060056 A2 20030724 (200358)# EN C12M000-00
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AU 2002366983 A1 20030730 (200425)# G01N033-53
US 6770434 B2 20040803 (200451) C12Q001-00 <--
EP 1461414 A2 20040929 (200464)# EN C12M001-34
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ADT US 2002086329 A1 US 2000-750348 20001229; EP 1221617 A2 EP 2001-650155 20011231; EP 1252929 A2 Div ex EP 2001-650155 20011231, EP 2002-17036 20020725; WO 2003060056 A2 WO 2002-IE107 20020726; AU 2002366983 A1 AU 2002-366983 20020726; US 6770434 B2 US 2000-750348 20001229; EP 1461414 A2 EP 2002-751579 20020726, WO 2002-IE107 20020726

FDT EP 1252929 A2 Div ex EP 1221617; AU 2002366983 A1 Based on WO 2003060056; EP 1461414 A2 Based on WO 2003060056

PRAI US 2000-750348 20001229; WO 2002-IE107 20020726;
AU 2002-366983 20020726; EP 2002-751579 20020726

IC ICM B01L003-00; C12M000-00; C12M001-34; C12Q001-00; G01N033-53; G01N033-543
ICS B05D003-00; G01N033-50; G01N033-567; H01L021-00

AB US2002086329 A UPAB: 20041006

NOVELTY - A biological assay (M1), involves delivering a sample liquid of a suspension of cells at a controlled steady flow rate through a biochip (50) in the form of an elongate enclosed microchannel (51), causing an externally generated test to be carried out on the sample liquid as it is being delivered through the biochip and examining the sample liquid over time to observe the effect of the test on the sample.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) a transmigration assay (M2) to determine cell migration from the endothelium to the extracellular matrix, by delivering a sample liquid comprising a suspension of cells at a controlled steady flow rate through a microchannel forming part of a biochip, delivering a chemoattractant through another microchannel forming part of the biochip and being connected to the other microchannel through a restricted entry of sides less than that of a freely suspended cell, and observing the migration of the cells through the restricted entry to the chemoattractant;

(2) separating (M3) one cell type from a sample liquid containing more than and at least one other one cell type, by delivering a chemoattractant and the sample liquid through a microchannel forming part of a biochip, the liquids forming multilaminar flow and the chemoattractant having an affinity to the cell type allowing the flow to continue sufficiently so as to remove that cell type into the chemoattractant, and subsequently separating the chemoattractant liquid and the sample liquid;

(3) a biochip (I), comprising:

(a) an elongate main microchannel, an inlet port mounted on the proximal end of the main microchannel, an outlet port (1,3) adjacent its distal end, a separate liquid feeder microchannel connected to the main microchannel, the feeder microchannel having an inlet port, and an outlet feeder port connecting the feeder microchannel and the main microchannel; or

(b) two separate elongate main microchannels, a connecting microchannel between the two separate main microchannels, an inlet port mounted on the proximal end of the each of the main microchannels, and an outlet port mounted on the distal end of each microchannel; and

(4) a biochip assembly comprising a number of biochips formed on the one base sheet.

USE - M1 and (I) are useful in biological assay. M2 is useful for determining cell migration from the endothelium to extracellular matrix, and M3 is useful for separating one cell type from a sample liquid

containing one or more cell types. (claimed). The methods and the biochips are adapted for drug discovery and combinatorial chemistry.

ADVANTAGE - A number of tests can be carried out using the biochip assembly. The tests occur over relatively long periods of time, so it is possible to use one microscope to carry out a number of examinations. The biochip reduces the reagent or sample consumption, analysis time and larger transfer rates due to the diminished distances involved. As several assays can be run in parallel, each process in an assay can be manipulated step by step through computer control enabling greater efficiency. This accuracy in combination with higher yields reached to a reduction in waste. This is not only economically favorable but also environmentally beneficial as hazardous chemicals are not involved. The method limits in vivo testing, and produces much more accurate statistical results. The method also allows one to simulate in vivo conditions eliminating many of the disadvantages of the conventional techniques, and hence immediately decreases the need for animal trials, while simultaneously increasing the statistical response as a result of continuous flow assay. The biochips are disposable and can be used for analysis of blood in hospitals. The method imitate natural situation as for as possible, thus overcoming the disadvantages of other techniques resulting in a fast and accurate process.

DESCRIPTION OF DRAWING(S) - The figure shows the plan view of the biochip.

Liquid outlet port 1,3

Bubble release port 2,4

Biochip 50

Microchannel 51

Dwg.1/26

FS CPI EPI GMPI

FA AB; GI; DCN

MC CPI: A12-V03C2; B04-F01; B11-C08C; B11-C08D; B11-C08E; B11-C08E6; B12-K04E; C04-F01; C11-C08C; C11-C08D; C11-C08E; C11-C08E6; C12-K04E; D05-H; D05-H09

EPI: S03-E14H; S05-C01

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FILE 'HOME' ENTERED AT 13:38:04 ON 10 AUG 2005

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     FILE 'HCAPLUS' ENTERED AT 13:36:03 ON 10 AUG 2005
L1           1 SEA ABB=ON  PLU=ON  (US2004132128 OR US6770434 OR US2002086329)
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     FILE 'HCAPLUS' ENTERED AT 13:37:01 ON 10 AUG 2005

     FILE 'REGISTRY' ENTERED AT 13:37:01 ON 10 AUG 2005

     FILE 'WPIX' ENTERED AT 13:37:04 ON 10 AUG 2005
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               /PN

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               OR BIOASSAY OR MICROTITER PLATES OR MICROANALYSIS+NT OR
               LAB-ON-A-CHIP+NT OR ANALYTICAL APPARATUS+NT OR BIOCHIPS OR
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                OR MICROTITRATION)/CT
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               E CELL MIGRATION/CT
               E E3+ALL
L5         21597 SEA ABB=ON  PLU=ON  CELL MIGRATION+NT/CT
               E FLOW/CT
               E E3+ALL
L6             QUE ABB=ON  PLU=ON  FLOW+OLD,NT/CT
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L7           174 SEA ABB=ON  PLU=ON  ("SHVETS I"/AU OR "SHVETS I A"/AU OR
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               "SHVETS I N"/AU OR "SHVETS I S"/AU OR "SHVETS I T"/AU OR
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               OR "KASHANIN DMITRIY"/AU OR "KASHANIN DMITRY"/AU)
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L9           174 SEA ABB=ON  PLU=ON  ("KELLEHER D"/AU OR "KELLEHER D E"/AU OR
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               P"/AU OR "KELLEHER DERMOD"/AU OR "KELLEHER DERMOT"/AU OR
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               E WILLIAMS V/AU
L10          148 SEA ABB=ON  PLU=ON  ("WILLIAMS V"/AU OR "WILLIAMS V A"/AU OR
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               "VOLKOV YU P"/AU OR "VOLKOV YU S"/AU OR "VOLKOV YU T"/AU OR
               "VOLKOV YU V"/AU OR "VOLKOV YU YA"/AU OR "VOLKOV YU YU"/AU OR
               "VOLKOV YURI"/AU OR "VOLKOV YURI N"/AU OR "VOLKOV YURI P"/AU)
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                E UNIDIVIDED TRINITY/CS,PA
                E UNDIVIDED TRINITY/CS,PA
L13          36 SEA ABB=ON  PLU=ON  (UNDIV? AND TRINITY AND HOLY AND ELIZ?)/CS,
                PA
L14       35197 SEA ABB=ON  PLU=ON  ((LABORATORY WARE+NT OR FLUOROMETRY+NT OR
                X-RAY SPECTROSCOPY+OLD,NT OR TITRATION+OLD,NT)/CT OR ANALYS!S/C
                W)(L)MICRO?
L15       26730 SEA ABB=ON  PLU=ON  (L3 OR L14) AND (L4 OR L5)
L16         216 SEA ABB=ON  PLU=ON  L15 AND L6
L17           1 SEA ABB=ON  PLU=ON  L16 AND (L7 OR L8 OR L9 OR L10 OR L11 OR
                L12 OR L13)
L18         215 SEA ABB=ON  PLU=ON  L16 NOT L17
                E PIPES AND TUBES/CT
                E E3+ALL
L19       65298 SEA ABB=ON  PLU=ON  "PIPES AND TUBES"+OLD,NT/CT
L20          53 SEA ABB=ON  PLU=ON  L19 AND L18
L21         340 SEA ABB=ON  PLU=ON  L19 (L)(MICROFLUID? OR MICROCHANNEL?)
L22          20 SEA ABB=ON  PLU=ON  L20 AND L21
L23             QUE ABB=ON  PLU=ON  PY<=2000 OR AY<=2000 OR PRY<=2000
L24          11 SEA ABB=ON  PLU=ON  L22 AND L23
L25           1 SEA ABB=ON  PLU=ON  ("136:275662"/AN OR "2002:276206"/AN) AND
                L24
L26          10 SEA ABB=ON  PLU=ON  ("133:293180"/AN OR "133:86449"/AN OR
                "134:2305"/AN OR "134:307569"/AN OR "135:2522"/AN OR "136:27566
                2"/AN OR "137:2709"/AN OR "138:166200"/AN OR "139:288582"/AN
                OR "139:361178"/AN OR "2000:493703"/AN OR "2000:756609"/AN OR
                "2000:824440"/AN OR "2001:284081"/AN OR "2001:396720"/AN OR
                "2002:276206"/AN OR "2002:429168"/AN OR "2003:150480"/AN OR
                "2003:810069"/AN OR "2003:875509"/AN) AND L24

=> b hcap
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FILE LAST UPDATED: 9 Aug 2005  (20050809/ED)

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L17  ANSWER 1 OF 1  HCAPLUS  COPYRIGHT 2005 ACS on STN
AN   2002:505299  HCAPLUS
DN   137:43884
ED   Entered STN:  05 Jul 2002
TI   Biological assays and biochips mirroring in vivo situations
IN   Shvets, Igor; Kashanin, Dmitriy; Kelleher,
     Dermot; Williams, Vivienne; Volkov, Yuri
PA   The Provost, Fellows and Scolars of the College of the Holy & Undevided
     Trinity of Queen Elizabeth near Dublin, Ire.
```

SO U.S. Pat. Appl. Publ., 40 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM G01N033-53
ICS G01N033-567; H01L021-00; B05D003-00
INCL 435007100
CC 9-1 (Biochemical Methods)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002086329	A1	20020704	US 2000-750348	20001229
US 6770434	B2	20040803		
EP 1221617	A2	20020710	EP 2001-650155	20011231
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
EP 1252929	A2	20021030	EP 2002-17036	20020725
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
WO 2003060056	A2	20030724	WO 2002-IE107	20020726
WO 2003060056	A3	20040226		
WO 2003060056	C1	20050106		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1461414	A2	20040929	EP 2002-751579	20020726
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
US 2004132128	A1	20040708	US 2003-686674	20031017
PRAI US 2000-750348	A	20001229		
EP 2001-650155	A3	20011231		
EP 2002-17036	A	20020725		
WO 2002-IE107	W	20020726		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2002086329	ICM	G01N033-53
	ICS	G01N033-567; H01L021-00; B05D003-00
	INCL	435007100
US 2002086329	NCL	435/004.000; 422/058.000
	ECLA	B01L003/00C6M
EP 1221617	ECLA	B01L003/00C6M
EP 1252929	ECLA	B01L003/00C6M
US 2004132128	NCL	435/040.500
	ECLA	B01L003/00C6M

AB Biol. assays using various constructions of biochips are disclosed to mirror in vivo situations. The biochip comprises a microchannel having a liquid outlet port, bubble release port and a liquid outlet port with an associated bubble release port. A multiplicity of tests can be performed often by coating the bore of the microchannel with various adhesion mediating proteins or chemoattractants. The assay assembly comprises a syringe pump feeding the biochip. An inverted microscope, digital camera and recorder are provided. A sample liquid containing cells in suspension is injected slowly through the biochip and the effect of the assay recorded over a long period.

ST bioassay biochip; adhesion protein biochip; chemoattractant biochip
IT Adhesion, biological
Animal tissue culture
Bioassay

Cell
Cell migration
Coating materials
Diffusion
Flow
Microarray technology
Plastic films
(biol. assays and biochips mirroring in vivo situations)
IT Reagents
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(biol. assays and biochips mirroring in vivo situations)
IT Polysiloxanes, uses
RL: DEV (Device component use); NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(biol. assays and biochips mirroring in vivo situations)
IT Plastics, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(biol. assays and biochips mirroring in vivo situations)
IT Chemotactic factors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(chemoattractants; biol. assays and biochips mirroring in vivo situations)
IT Blood vessel
(endothelium, internal bore of biochip coated with cells of; biol. assays and biochips mirroring in vivo situations)
IT Proteins
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); DEV (Device component use); TEM (Technical or engineered material use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(extracellular matrix-associated, internal bore of biochip coated with; biol. assays and biochips mirroring in vivo situations)
IT **Animal cell**
(internal bore of biochip coated with; biol. assays and biochips mirroring in vivo situations)
IT Proteins
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); DEV (Device component use); TEM (Technical or engineered material use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(internal bore of biochip coated with; biol. assays and biochips mirroring in vivo situations)
IT **Flow**
(laminar, multilaminar; biol. assays and biochips mirroring in vivo situations)
IT Samples
(liquid; biol. assays and biochips mirroring in vivo situations)
IT Pipes and Tubes
(microchannels; biol. assays and biochips mirroring in vivo situations)
IT Hydrophobicity
(of coating; biol. assays and biochips mirroring in vivo situations)
IT **Extracellular matrix**
(transmigration assay to determine cell migration from endothelium to; biol. assays and biochips mirroring in vivo situations)
IT Endothelium
(vascular, internal bore of biochip coated with cells of; biol. assays and biochips mirroring in vivo situations)
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Akong; US 5670113 A 1997 HCAPLUS
(2) Berens; US 5998160 A 1999
(3) Buechler; US 5679526 A 1997 HCAPLUS
(4) Buechler; US 5939272 A 1999 HCAPLUS
(5) Buechler; US 5985579 A 1999 HCAPLUS
(6) Cubicciotti; US 6287765 B1 2001 HCAPLUS
(7) Fedun; US 5578492 A 1996
(8) Fuhr; US 6113768 A 2000

(9) Goodwin; US 5284753 A 1994
(10) Goodwin; US 5302515 A 1994 HCAPLUS
(11) Guirguis; US 4912057 A 1990
(12) Kalland; US 6042837 A 2000 HCAPLUS
(13) Kellogg; US 6063589 A 2000 HCAPLUS
(14) Lemonnier; US 4912037 A 1990
(15) Lockhart; US 5556752 A 1996 HCAPLUS
(16) Parce; US 6042709 A 2000 HCAPLUS
(17) Springer; US 5514555 A 1996 HCAPLUS
(18) Steel Adam; The Flow Thru Chip: A three Dimensional Biochip Platform. Microarray Biochip Technology 2000, P87
(19) Swedberg; US 5571410 A 1996 HCAPLUS
(20) Taylor; US 6103479 A 2000 HCAPLUS
(21) Tchao; US 5601997 A 1997 HCAPLUS
(22) Valkirs; US 4727019 A 1988 HCAPLUS
(23) Vande Woude; US 5645988 A 1997 HCAPLUS
(24) Yager; US 5932100 A 1999
(25) Yamauchi; US 5723345 A 1998 HCAPLUS
(26) Yen-Maguire; US 5543327 A 1996

=> d all l26 tot

L26 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:875509 HCAPLUS
DN 139:361178
ED Entered STN: 07 Nov 2003
TI Device and method for monitoring leukocyte migration
IN Kirk, Gregory; Kim, Enoch; Ostuni, Emanuele; Schueller, Olivier; Sweetnam, Paul; Brown, Matthew; Aumond, Bernardo; Benoit, Brian; Cruceta, Johanna
PA Surface Logix, Inc., USA
SO PCT Int. Appl., 71 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N033-53
ICS C12M001-34
CC 9-1 (Biochemical Methods)
FAN.CNT 23

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2003091730	A1	20031106	WO 2003-US12764	20030424	
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW					
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
	US 2003040087	A1	20030227	US 2002-206112	20020729	<--
	US 6893851	B2	20050517			
	US 2003017582	A1	20030123	US 2002-241445	20020912	<--
	CA 2484058	AA	20031106	CA 2003-2484058	20030424	
	EP 1502108	A1	20050202	EP 2003-719923	20030424	
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK					
PRAI	US 2002-374779P	P	20020424			
	US 2002-374781P	P	20020424			
	US 2002-374783P	P	20020424			
	US 2002-206112	A	20020729			
	US 2002-241445	A	20020912			
	US 2002-419980P	P	20021022			
	US 2000-709776	A2	20001108	<--		

US 2001-307886P	P	20010727
US 2001-323742P	P	20010921
US 2001-328103P	P	20011011
US 2001-330456P	P	20011022
US 2001-334548P	P	20011203
US 2002-363355P	P	20020312
US 2002-97302	A2	20020315
US 2002-97304	A2	20020315
US 2002-97306	A2	20020315
US 2002-97322	A2	20020315
US 2002-97329	A2	20020315
US 2002-97351	A2	20020315
US 2002-374799P	P	20020424
WO 2003-US12764	W	20030424

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003091730	ICM	G01N033-53
	ICS	C12M001-34
US 2003040087	NCL	435/177.000 <--
US 2003017582	NCL	435/288.500; 435/305.300; 435/032.000 <--

AB A device for monitoring leukocyte migration is provided. The invention also provides a method of using the device to monitor leukocyte migration in the presence of physiol. shear flow and therefore simulate physiol. conditions of a blood vessel in vivo. The invention further provides a method of using the device to high-throughput screen a plurality of test agents. The present invention further provides a flexible assay system and numerous assays that can be used to test biol. interactions and systems. Laminar flow gradients are employed mimic gradient situations present in vivo.

ST device monitoring leukocyte migration

IT Reaction
(Biol.; device and method for monitoring leukocyte migration)

IT CD antigens
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(CD31; device and method for monitoring leukocyte migration)

IT Ligands
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(Integrin binding; device and method for monitoring leukocyte migration)

IT Cell adhesion molecules
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(JAM (junctional adhesion mol.); device and method for monitoring leukocyte migration)

IT Molecules
(Leukocyte arrest mediator; device and method for monitoring leukocyte migration)

IT Molecules
(Leukocyte capture mediator; device and method for monitoring leukocyte migration)

IT Molecules
(Leukocyte migration mediator; device and method for monitoring leukocyte migration)

IT Molecules
(Leukocyte rolling mediator; device and method for monitoring leukocyte migration)

IT Molecules
(Leukocyte transmigration mediator; device and method for monitoring leukocyte migration)

IT Capillary tubes
(Microfluidic network; device and method for monitoring leukocyte migration)

IT Cell adhesion molecules

RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(PECAM-1 (platelet-endothelial cell adhesion mol. 1); device and method for monitoring leukocyte migration)
IT Ligands
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(Selectin-binding; device and method for monitoring leukocyte migration)
IT **Analytical apparatus**
Blood vessel
Communication
Concentration (condition)
Configuration
Containers
Flow
High throughput screening
Leukocyte
Measuring apparatus
Microtiter plates
Molecules
Pipes and Tubes
Suspensions
Test kits
Velocity
Video cameras
Wells
(device and method for monitoring leukocyte migration)
IT Chemokines
Selectins
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(device and method for monitoring leukocyte migration)
IT Blood vessel
(endothelium; device and method for monitoring leukocyte migration)
IT Pressure
(hydrostatic; device and method for monitoring leukocyte migration)
IT **Flow**
(laminar; device and method for monitoring leukocyte migration)
IT Molecules
(leukocyte migration promoter; device and method for monitoring leukocyte migration)
IT Lymphokines
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(leukocyte migration-inhibiting factor; device and method for monitoring leukocyte migration)
IT **Cell migration**
(leukocyte; device and method for monitoring leukocyte migration)
IT **Leukocyte**
(migration; device and method for monitoring leukocyte migration)
IT **Flow**
(shear, Physiol.; device and method for monitoring leukocyte migration)
IT Endothelium
(vascular; device and method for monitoring leukocyte migration)
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Caspi; US 5422270 A 1995
(2) Goodwin; US 5302515 A 1994 HCAPLUS
(3) Springer; US 5460945 A 1995 HCAPLUS

L26 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2003:810069** HCAPLUS
DN 139:288582
ED Entered STN: 15 Oct 2003
TI Devices and methods for using centripetal acceleration to drive fluid

movement in a microfluidics system for performing biological fluid assays
IN Kellogg, Gregory; Kieffer-Higgins, Stephen G.; Jensen, Mona D.; Ommert, Shari; Kob, Mikayla; Pierce, Andrea; Morneau, Keith; Lin, Hsin Chiang
PA Tecan Trading AG, Switz.
SO U.S., 73 pp., Cont.-in-part of U.S. Ser. No. 83,678.
CODEN: USXXAM
DT Patent
LA English
IC ICM G01N001-28
INCL 422072000; 422101000; 436045000; 436177000
CC 9-1 (Biochemical Methods)
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	US 6632399	B1	20031014	US 1999-315114	19990519	<--
	US 6063589	A	20000516	US 1998-83678	19980522	<--
	US 6302134	B1	20011016	US 2000-526496	20000315	<--
	US 2001001060	A1	20010510	US 2000-745922	20001221	<--
	US 6399361	B2	20020604			
	US 2002027133	A1	20020307	US 2001-981007	20011016	<--
	US 6548788	B2	20030415			
	US 2003195106	A1	20031016	US 2003-414536	20030415	<--
	US 6719682	B2	20040413			
	US 2004089616	A1	20040513	US 2003-684707	20031014	<--
	US 2004191125	A1	20040930	US 2004-823401	20040413	<--
PRAI	US 1998-83678	A2	19980522	<--		
	US 1997-47488P	P	19970523	<--		
	US 1999-315114	A3	19990519	<--		
	US 2000-526496	A3	20000315	<--		
	US 2001-981007	A3	20011016			
	US 2003-414536	A1	20030415			

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
US 6632399	ICM	G01N001-28	
	INCL	422072000; 422101000; 436045000; 436177000	
US 6632399	NCL	422/072.000; 422/101.000; 436/045.000; 436/177.000	
	ECLA	B01F013/00M; B01L003/00C6M; G01N035/00C2	<--
US 6063589	NCL	435/024.000; 366/DIG.003; 422/050.000; 422/068.100; 422/082.010; 422/146.000; 435/004.000; 435/025.000; 435/028.000; 435/032.000; 435/283.100; 435/287.100	
	ECLA	B01F013/00M; B01L003/00C6M; G01N035/00C2	<--
US 6302134	NCL	137/074.000; 137/072.000; 137/251.100	
	ECLA	B01F013/00M; B01L003/00C6M; F16K031/00C; G01N021/07; G01N035/00C2; H01C017/065B4D; H01R039/64	<--
US 2001001060	NCL	435/283.100; 366/DIG.003; 435/285.200; 435/286.400; 435/287.100	
	ECLA	B01F013/00M; B01L003/00C6M; F16K031/00C; G01N021/07; G01N035/00C2; H01C017/065B4D; H01R039/64	<--
US 2002027133	NCL	219/543.000; 435/283.100; 435/285.200; 435/286.400; 435/287.100	
	ECLA	B01L003/00C6M; B01L007/00; G01N035/00C2	<--
US 2003195106	NCL	494/084.000; 464/900.000	
	ECLA	B01F013/00M; B01L003/00C6M; B01L007/00; F16K031/00C; G01N021/07; G01N035/00C2; H01C017/065B4D; H01R039/64	<--
US 2004089616	NCL	210/749.000; 210/600.000; 210/198.100; 210/322.000	
	ECLA	B01F013/00M; B01L003/00C6M; F16K031/00C; G01N021/07; G01N035/00C2; H01C017/065B4D; H01R039/64	<--
US 2004191125	NCL	422/072.000	
	ECLA	B01F013/00M; B01L003/00C6M; B01L007/00; F16K031/00C; G01N021/07; G01N035/00C2; H01C017/065B4D; H01R039/64	<--

AB This invention provides methods and apparatus for performing microanalytic and microsynthetic analyses and procedures. Specifically, the invention provides a microsystem platform for use with a micromanipulation device to manipulate the platform by rotation, thereby utilizing the centripetal force resulting from rotation of the platform to motivate fluid movement

through microchannels embedded in the microplatform. The microsystem platforms of the invention are also provided having microfluidics components, resistive heating elements, temperature sensing elements, mixing structures, capillary and sacrificial valves, and methods for using these microsystems platforms for performing biol., enzymic, immunol. and chemical assays.

ST devices centripetal acceleration drive fluid microfluidic system biol assay

IT Valves
(Capillary and sacrificial; devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)

IT Acceleration
Force
(Centripetal; devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)

IT Apparatus
(Microfluidics; devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)

IT Apparatus
(Micromanipulation; devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)

IT Buffers
(Wash; devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)

IT Air
Analysis
Analytical apparatus
Bioassay
Body fluid
Capillary tubes
Cell
Containers
Flow
Fluids
Heating
Immunoassay
Mixers (processing apparatus)
Pore size
Rotation
Solids
Surface
Temperature sensors
Volume
(devices and methods for using centripetal acceleration to drive fluid movement in a **microfluidics** system for performing biol. fluid assays)

IT Reagents
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)

IT Plastics, uses
RL: DEV (Device component use); USES (Uses)
(devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)

IT Heating systems
(elements, Resistive; devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)

IT **Analysis**
(enzymic anal.; devices and methods for using centripetal acceleration to drive fluid movement in a **microfluidics** system for

performing biol. fluid assays)
IT Blood analysis
(glucose; devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)
IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glycohemoglobins; devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)
IT Hydrocarbons, uses
RL: DEV (Device component use); USES (Uses)
(solid, semisolid or viscous liquid; devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)
IT Ventilation, mechanical
(systems; devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)
IT Optical properties
(translucency; devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)
IT 50-99-7, Glucose, analysis
RL: ANT (Analyte); ANST (Analytical study)
(devices and methods for using centripetal acceleration to drive fluid movement in a microfluidics system for performing biol. fluid assays)
RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Anderson; Anal Biochem 1968, V28, P545
(2) Anon; EP 322657 1989
(3) Anon; EP 417305 1991
(4) Anon; EP 305210 1993 HCAPLUS
(5) Anon; WO 9322053 1993 HCAPLUS
(6) Anon; WO 9322058 1993 HCAPLUS
(7) Anon; EP 616218 1994 HCAPLUS
(8) Anon; DE 4410224 1995 HCAPLUS
(9) Anon; WO 9533986 1995
(10) Anon; EP 0637367 B1 1997
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(12) Bauer; US 4030834 A 1977
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(16) Ekins; US 4381291 A 1983 HCAPLUS
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(18) Guigan; US 4154793 A 1979 HCAPLUS
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(20) Klose; US 4515889 A 1985 HCAPLUS
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(24) Salatiello; US 4729862 A 1988
(25) Trenkler; US 3952116 A 1976 HCAPLUS

L26 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2003:150480** HCAPLUS
DN 138:166200
ED Entered STN: 27 Feb 2003
TI Apparatus and methods for correcting for variable velocity in microfluidic systems
IN Kopf-Sill, Anne R.; Chow, Andrea W.; Cohen, Claudia B.; Sundberg, Steven A.; Parce, John Wallace
PA Caliper Technologies Corp., USA
SO U.S., 54 pp., Cont.-in-part of U.S. Provisional Ser. No. 49,013.
CODEN: USXXAM

DT Patent
LA English
IC ICM C12G001-68
ICS G01N021-00; G01N033-558; G01F005-00; G01P003-36
INCL 435006000; 435006000; 435007900; 435287100; 435287200; 435288300; 435288400; 435288700; 435810000; 435007100
CC 9-1 (Biochemical Methods)
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	US 6524790	B1	20030225	US 1998-93542	19980608	<--
	AU 747713	B2	20020523	AU 2000-71755	20001122	<--
	US 2002187513	A1	20021212	US 2002-102149	20020319	<--
	US 6703205	B2	20040309			
	US 2003165960	A1	20030904	US 2003-359395	20030205	<--
PRAI	US 1997-49013P	P	19970609	<--		
	US 1998-76468P	P	19980302	<--		
	US 1998-93542	B3	19980608	<--		
	US 2002-102149	A3	20020319			

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6524790	ICM	C12G001-68
	ICS	G01N021-00; G01N033-558; G01F005-00; G01P003-36
	INCL	435006000; 435006000; 435007900; 435287100; 435287200; 435288300; 435288400; 435288700; 435810000; 435007100
US 6524790	NCL	435/006.000; 204/193.000; 204/194.000; 204/400.000; 204/409.000; 204/412.000; 204/451.000; 204/455.000; 204/601.000; 205/777.500; 210/451.000; 210/505.000; 422/050.000; 422/052.000; 422/055.000; 422/057.000; 422/058.000; 422/068.100; 422/073.000; 422/082.000; 422/082.010; 422/082.090; 422/102.000; 422/108.000; 422/119.000; 435/007.100; 435/007.210; 435/007.900; 435/287.100; 435/287.200; 435/288.300; 435/288.400; 435/288.700; 435/810.000; 436/004.000; 436/006.000; 436/149.000; 436/150.000; 436/151.000; 436/164.000; 436/165.000; 436/172.000; 436/501.000; 436/514.000; 436/518.000; 436/519.000; 436/527.000; 436/531.000; 436/535.000; 436/805.000; 436/809.000
	ECLA	B01L003/00C6; B01L003/00C6E; B01L003/00C6M; G01N027/447; G01N027/447B3A2; G01N027/447C7; G01N033/557 <--
US 2002187513	NCL	435/006.000; 204/400.000; 204/409.000; 204/412.000; 422/055.000; 422/057.000; 422/058.000; 422/082.010; 435/004.000; 435/007.900; 435/287.100; 435/287.200; 435/288.300; 435/288.400; 435/288.700; 435/810.000; 436/149.000; 436/150.000; 436/151.000; 436/164.000; 436/165.000; 436/172.000; 436/514.000; 436/518.000; 436/527.000; 436/531.000; 436/535.000; 436/805.000; 436/809.000
	ECLA	B01L003/00C6; B01L003/00C6E; B01L003/00C6M; G01N027/447; G01N027/447B3A2; G01N027/447C7; G01N033/557 <--
US 2003165960	NCL	435/006.000; 435/007.100; 702/019.000
	ECLA	B01L003/00C6; B01L003/00C6E; B01L003/00C6M; G01N027/447; G01N027/447B3A2; G01N027/447C7; G01N033/557 <--

AB The invention concerns electrokinetic devices having a computer for correcting for electrokinetic effects. Methods of correcting for electrokinetic effects by establishing the velocity of reactants and products in a reaction in electrokinetic microfluidic devices are also provided. These microfluidic devices can have substrates with channels, depressions, and/or wells for moving, mixing and monitoring precise amts. of analyte fluids. Diagrams describing the apparatus assembly and operation are given.
ST app fluid flow velocity fluorophore hybridization

IT Polymerization
(agent for; apparatus and methods for correcting for variable velocity in microfluidic systems)
IT **Analytical apparatus**
Animal cell
Buffers
Catalysts
Chromophores
Computer application
Drugs
Electric charge
Electrokinetic phenomena
Flow
Fluorescent substances
Heat
High throughput screening
Labels
Light
Micelles
Molecular association
Nucleic acid hybridization
Pipes and Tubes
Velocity
(apparatus and methods for correcting for variable velocity in **microfluidic** systems)
IT Amino acids, **analysis**
Antibodies and Immunoglobulins
Antigens
Avidins
Biopolymers
Enzymes, **analysis**
Ligands
Lipids, **analysis**
Monomers
Nucleic acids
Nucleosides, **analysis**
Nucleotides, **analysis**
Peptides, **analysis**
Polymers, **analysis**
Polysaccharides, **analysis**
Proteins
Receptors
Toxins
RL: ANT (Analyte); ANST (Analytical study)
(apparatus and methods for correcting for variable velocity in **microfluidic** systems)
IT Blood
(components; apparatus and methods for correcting for variable velocity in microfluidic systems)
IT Drug delivery systems
(liposomes; apparatus and methods for correcting for variable velocity in microfluidic systems)
IT 58-85-5, Biotin
RL: ANT (Analyte); ANST (Analytical study)
(apparatus and methods for correcting for variable velocity in microfluidic systems)
RE.CNT 63 THERE ARE 63 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Anon; WO 9604547 1996 HCAPLUS
(2) Anon; WO 9702357 1997 HCAPLUS
(3) Anon; WO 9800231 1998 HCAPLUS
(4) Anon; WO 9800705 1998 HCAPLUS
(5) Anon; WO 9800707 1998 HCAPLUS
(6) Anon; WO 9802728 1998
(7) Anon; WO 9805424 1998 HCAPLUS
(8) Anon; WO 9822811 1998 HCAPLUS

(9) Anon; WO 9845481 1998 HCAPLUS
(10) Anon; WO 9845929 1998 HCAPLUS
(11) Anon; WO 9846438 1998
(12) Anon; WO 9849548 1998
(13) Anon; WO 9855852 1998
(14) Anon; WO 9856956 1998 HCAPLUS
(15) Anon; WO 9900649 1999
(16) Anon; WO 9910735 1999 HCAPLUS
(17) Anon; WO 9912016 1999 HCAPLUS
(18) Anon; WO 9916162 1999
(19) Anon; WO 9919056 1999
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(45) Parce; US 5869004 A 1999 HCAPLUS
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(47) Parce; US 5885470 A 1999
(48) Parce; US 5942443 A 1999 HCAPLUS
(49) Parce; US 5958203 A 1999 HCAPLUS
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L26 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:429168 HCAPLUS
DN 137:2709
ED Entered STN: 07 Jun 2002
TI Optical switching and sorting of biological samples and microparticles transported in a micro-fluidic device, including integrated bio-chip devices
IN Wang, Mark; Ata, Erhan; Esener, Sadik
PA The Regents of the University of California, USA
SO PCT Int. Appl., 52 pp.

CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 73

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2002044689	A2	20020606	WO 2001-US45058	20011128	<--
	WO 2002044689	C1	20021114			
	WO 2002044689	A3	20030424			
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW					
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
	AU 2002030530	A5	20020611	AU 2002-30530	20011128	<--
	US 2002181837	A1	20021205	US 2001-998012	20011128	<--
	US 6778724	B2	20040817			
	EP 1352093	A2	20031015	EP 2001-990768	20011128	<--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR					
	JP 2004528156	T2	20040916	JP 2002-546188	20011128	<--
	US 2005164158	A1	20050728	US 2004-848972	20040518	<--
PRAI	US 2000-253644P	P	20001128	<--		
	US 2001-998012	A	20011128			
	WO 2001-US45058	W	20011128			

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 2002044689	ICM	G01N	
WO 2002044689	ECLA	G21K001/00N; H05H003/04	<--
US 2002181837	NCL	385/016.000; 422/100.000; 428/188.000	
	ECLA	G21K001/00N; H05H003/04	<--
JP 2004528156	FTERM	2G052/AA40; 2G052/AD29; 2G052/DA09; 2G052/ED00; 2H052/AF19; 4G075/AA27; 4G075/BB05; 4G075/CA36; 4G075/CA38; 4G075/EE12; 4G075/FA01; 4G075/FA11; 4G075/FC02	<--
US 2005164158	NCL	435/002.000	<--

AB Small particles, for example 5 μm diameter microspheres or cells, within, and moving with, a fluid, normally water, that is flowing within microfluidic channels within a radiation-transparent substrate, typically molded PDMS clear plastic, are selectively manipulated, normally by being pushed with optical pressures forces, with a laser light switching beam, preferably as arises from vertical cavity surface emitting lasers (VCSELs) operating in Laguerre-Gaussian mode, at branching junctions, such as an "X", in the microfluidic channels so as to enter into selected downstream branches OUTPUT 1, OUPUT 2, thereby realizing switching and sorting of particles, including in parallel. Transport of the small particles thus transpires by microfluidics while manipulation in the manner of optical tweezers arises either from pushing due to optical scattering force, or from pulling due to an attractive optical gradient force. Whether pushed or pulled, the particles within the flowing fluid may be optically sensed, and highly-parallel. Low-cost, cell- and particle-anal. devices efficiently realized, including as integrated on bio-chips.

ST optical switching sorting microparticle microfluidic device; integrated biochip optical switch sorting microsphere cell; tweezer optical particle switching sorting analysis

IT Lasers
(VCSEL (vertical cavity surface emitting laser), optical switch;

optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT Light scattering
(as optical force; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT Samples
(biol.; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT **Pipes and Tubes**
(channels; optical switching and sorting of biol. samples and microparticles transported in **microfluidic** device, including integrated biochip devices)

IT Silicone rubber, uses
Silicone rubber, uses
RL: DEV (Device component use); USES (Uses)
(di-Me; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT Cytometry
(flow, optical microfluidic apparatus; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT **Microarray technology**
(integrated; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT **Flow**
(microfluidics; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT Fluids
(microfluids; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT Plastics, uses
RL: DEV (Device component use); USES (Uses)
(molded clear; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT **Analytical apparatus**
Cell
Fibroblast
Microarray technology
Microparticles
Microspheres
Optical switching
Particles
(optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT Laser radiation
(optical switching beam; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT Apparatus
(optical tweezers; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT Force
(optical; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

IT Separators

(sorters; optical switching and sorting of biol. samples and microparticles transported in microfluidic device, including integrated biochip devices)

L26 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:276206 HCAPLUS
DN 136:275662
ED Entered STN: 12 Apr 2002
TI Microfluidic devices and methods of use
IN Chou, Hou-Pu; Eyal, Shulamit; Fu, Anne Y.; Quake, Stephen R.
PA California Institute of Technology, USA
SO PCT Int. Appl., 119 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-68
CC 9-1 (Biochemical Methods)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2002029106	A2	20020411	WO 2001-US30933	20011002	<--
	WO 2002029106	A3	20020711			
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
	AU 2002011389	A5	20020415	AU 2002-11389	20011002	<--
	US 2002123033	A1	20020905	US 2001-970453	20011002	<--
	US 2002127736	A1	20020912	US 2001-970122	20011002	<--
	EP 1322936	A2	20030702	EP 2001-979417	20011002	<--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR					
PRAI	US 2000-237937P	P	20001003	<--		
	US 2000-237938P	P	20001003	<--		
	WO 2001-US30933	W	20011002			

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 2002029106	ICM	C12Q001-68	
WO 2002029106	ECLA	B01L003/00C6M; B81B001/00H; F04B011/00; F04B019/00M; F04B043/04M; G01N015/14; G01N015/14H1	<--
AU 2002011389	ECLA	G01N015/14H1	<--
US 2002123033	NCL	435/004.000; 436/063.000; 204/451.000; 204/600.000; 422/073.000	
	ECLA	B01L003/00C6M; B81B001/00H; F04B019/00M; F04B043/04M; G01N015/14G; G01N015/14H1	<--
US 2002127736	NCL	436/180.000; 422/100.000; 422/102.000; 422/103.000	
	ECLA	B01L003/00C6M; B81B001/00H; F04B011/00; F04B019/00M; F04B043/04M; G01N015/14H1	<--

AB A microfluidic device comprises pumps, valves, and fluid oscillation dampers. In a device employed for sorting, an entity is flowed by the pump along a flow channel through a detection region to a junction. Based upon an identity of the entity determined in the detection region, a waste or collection valve located on opposite branches of the flow channel at the junction are actuated, thereby routing the entity to either a waste pool or a collection pool. A damper structure may be located between the pump and the junction. The damper reduces the amplitude of oscillation pressure in the flow channel due to operation of the pump, thereby lessening oscillation in velocity of the entity during sorting process. The microfluidic device may be formed in a block of elastomer material, with thin membranes of the elastomer material deflectable into the flow

channel to provide pump or valve functionality. Velocity independent cytometry methods and apparatuses are also described.

ST microfluidic device sorting cytometry app

IT Optical modulators
(acoustooptical; microfluidic devices and methods of use)

IT Cell
(as analyte; microfluidic devices and methods of use)

IT Flow
(capillary; microfluidic devices and methods of use)

IT Pipes and Tubes
(channels; microfluidic devices and methods of use)

IT Nucleotides, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(determination of number of, in oligonucleotide; microfluidic devices and methods of use)

IT Silicone rubber, uses
RL: DEV (Device component use); USES (Uses)
(di-Me, Me hydrogen, Me vinyl; microfluidic devices and methods of use)

IT Cytometry
(flow; microfluidic devices and methods of use)

IT Vibration dampers
(fluid oscillation; microfluidic devices and methods of use)

IT Wave
(fluid, dampers; microfluidic devices and methods of use)

IT Optical detectors
(fluorescence; microfluidic devices and methods of use)

IT Oligonucleotides
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(labeled, with fluorescent mols.; microfluidic devices and methods of use)

IT Apparatus
CCD cameras
Computer program
Cytometry
Electroosmosis
Flow
Fluorescent substances
Laser induced fluorescence
Lasers
Membranes, nonbiological
Pressure
Pumps
Valves
Velocity
(microfluidic devices and methods of use)

IT Organic compounds, analysis
RL: ANT (Analyte); ANST (Analytical study)
(microfluidic devices and methods of use)

IT DNA
Oligonucleotides
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
(microfluidic devices and methods of use)

IT Rubber, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(microfluidic devices and methods of use)

IT Fluids
(microfluids; microfluidic devices and methods of use)

IT Pumps
(peristaltic; microfluidic devices and methods of use)

IT Separators
(sorters; microfluidic devices and methods of use)

IT 143413-85-8, YOYO-1
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(microfluidic devices and methods of use)

L26 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:396720 HCAPLUS
DN 135:2522
ED Entered STN: 01 Jun 2001
TI A microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and analysis of polarizable particles
IN Austin, Robert H.; Tegenfeldt, Jonas O.; Cox, Edward C.; Chou, Chia-fu; Bakajin, Olgica
PA Princeton University, USA
SO PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM B01D
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 3
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001037958	A2	20010531	WO 2000-US41929	20001106 <--
	WO 2001037958	A3	20020103		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 2001045040	A5	20010604	AU 2001-45040	20001106 <--
	US 6824664	B1	20041130	US 2000-707892	20001106 <--
PRAI	US 1999-163523P	P	19991104 <--		
	WO 2000-US41929	W	20001106 <--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001037958	ICM	B01D
WO 2001037958	ECLA	B01L003/00C6M; B01L007/00D; B03C005/02B4; C12N015/10A2B; C12Q001/68B10A <--
US 6824664	NCL	204/643.000
	ECLA	B03C005/02B2; B03C005/02B4 <--

AB The present invention further provides a device for the integrated micromanipulation, amplification, and anal. of polarized particles such as DNA comprises a microchip which contains constrictions of insulating material for dielectrophoresis powered by an a.c. or d.c. signal generator, and attached to a hot source that can be heated to specific temps. Nucleic acids can be heated and cooled to allow for denaturation, and the annealing of complementary primers and enzymic reactions, as in a thermocycling reaction. After such a reaction has been completed at the constriction, the dielectrophoretic field can be switched to a direct field to release the product and direct it through a matrix for fractionation. The device includes data anal. equipment for the control of these operations, and imaging equipment for the anal. of the products. The invention permits the efficient handling of minute samples in large nos., since reactions occur while sample material is trapped between constrictions. Because the positioning, reactions, and release into a fractioning matrix all occur at the constriction which serves as a focusing locus, the need to transfer samples into different tubes is eliminated, thus increasing the efficiency and decreasing the possibility of damage to the samples.
ST microfluidic device electrodeless dielectrophoresis polarizable particle; DNA PCR microfluidic device electrodeless dielectrophoresis
IT Reaction
(amplification; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of

polarizable particles)
IT Materials handling
(apparatus; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Polyamides, uses
RL: DEV (Device component use); USES (Uses)
(as substrate; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT **Biotechnology**
(**biochips**; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT **Capillary tubes**
(channels; **microfluidic** device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Glass, uses
RL: DEV (Device component use); USES (Uses)
(chip; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Photolithography
(constrictions formed on substrate by etching by; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Information systems
(data, device for anal. of; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT DNA
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(double-stranded; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Molecules
(fractionation of; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT **Analytical apparatus**
Microanalysis
(**microarray**; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Electric insulators
(microchip having constrictions of; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT **Analytical apparatus**
Apparatus
Cell
DNA microarray technology
DNA sequence **analysis**
Dielectric polarization
Dielectrophoresis
Electric current
Electrodes
Electrophoresis
Electrophoresis apparatus
Fractionation
Heaters
Nucleic acid hybridization
Optical imaging devices
PCR (polymerase chain reaction)
Thermal cycling
(**microfluidic** device with electrodeless dielectrophoresis for integrated **micromanipulation** and anal. of polarizable

particles)
IT DNA
Nucleic acids
Polynucleotides
RNA
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Enzymes, uses
Primers (nucleic acid)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Flow
(microfluidic; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Samples
(minute and in large nos.; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Polymers, analysis
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(particles; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Particles
(polarizable; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Syringes
(pumps; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT DNA
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(single-stranded; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT Pumps
(syringes; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT 143413-84-7, TOTO 1 163795-75-3, SYBR Green I
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(DNA stained with; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT 502-86-3, p-Xylylene 7631-86-9, Silica, uses 9011-14-7, PMMA 9016-00-6, PDMS 31900-57-9, PDMS
RL: DEV (Device component use); USES (Uses)
(as substrate; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)
IT 7440-21-3, Silicon, uses 14808-60-7, Quartz, uses
RL: DEV (Device component use); USES (Uses)
(constrictions of; microfluidic device with electrodeless dielectrophoresis for integrated micromanipulation and anal. of polarizable particles)

L26 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:284081 HCAPLUS
DN 134:307569
ED Entered STN: 20 Apr 2001
TI Microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage
IN Farinas, Javier Anibal; Wada, H. Garrett
PA Caliper Technologies Corp., USA

SO PCT Int. Appl., 70 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12N013-00
ICS C12Q001-02; G01N001-30; G01N015-06
CC 9-1 (Biochemical Methods)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2001027253	A1	20010419	WO 2000-US27659	20001006	<--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG					
	CA 2385618	AA	20010419	CA 2000-2385618	20001006	<--
	EP 1222257	A1	20020717	EP 2000-975224	20001006	<--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL					
	JP 2003511682	T2	20030325	JP 2001-530458	20001006	<--
	US 6537771	B1	20030325	US 2000-684313	20001006	<--
	US 2004009545	A1	20040115	US 2003-349396	20030121	<--
	US 6759191	B2	20040706			
	US 2004048239	A1	20040311	US 2003-655697	20030905	<--
PRAI	US 1999-158323P	P	19991008	<--		
	US 1999-168792P	P	19991202	<--		
	US 2000-229951P	P	20000901	<--		
	US 2000-684313	A3	20001006	<--		
	WO 2000-US27659	W	20001006	<--		
	US 2003-349396	A1	20030121			

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 2001027253	ICM	C12N013-00	
	ICS	C12Q001-02; G01N001-30; G01N015-06	
WO 2001027253	ECLA	G01N001/30; G01N033/50D	<--
US 6537771	NCL	435/029.000; 435/004.000; 435/007.200; 435/968.000	
	ECLA	G01N001/30; G01N031/22; G01N033/50D	<--
US 2004009545	NCL	435/004.000; 435/283.100; 435/285.200; 435/286.500	
	ECLA	G01N001/30; G01N031/22; G01N033/50D	<--
US 2004048239	NCL	435/004.000	
	ECLA	G01N001/30; G01N031/22; G01N033/50D	<--

AB Transmembrane potential measurement methods using cationic dyes, and anionic dyes are provided. Compns. of the cationic and anionic dyes and microfluidic systems which include the dyes and membranes are provided in conjunction with processing elements for transmembrane potential measurements. The time course of SYTO 62 (a cyclic-substituted unsym. cyanine dye) uptake by THP-1 cells depended on transmembrane potential. The changes in the cell transmembrane potential were detected in a microfluidic processor.

ST Nernstein voltage sensitive dye transmembrane potential; membrane potential detn Nernstein voltage dye; microfluidic app dye transmembrane voltage; SYTO 62 uptake THP1 cell transmembrane potential

IT **Animal cell line**
(3T3; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT **Animal cell line**
(CHO; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT **Animal cell line**
(COS; microfluidic devices and use of Nernstein voltage sensitive dyes

in measuring transmembrane voltage)
IT **Animal cell line**
(HEK; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Dyes
(Nernstein voltage-sensitive; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT **Animal cell line**
(THP-1; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Dyes
(acid; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Dyes
(aryl; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Membrane potential
(biol.; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Nucleic acids
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(cationic dye staining; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Cyanine dyes
Dyes
(cationic; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Bone
Cat (Felis catus)
Dog (Canis familiaris)
Livestock
Muscle
Nerve
Primate
Rodent
Skin
(cell of; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Proteins, specific or class
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(cell-attached, as transmembrane potential modulators; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Cyanine dyes
(cyclic-substituted unsym.; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Polarization
(depolarization; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Cyanine dyes
(derivs., dyes with short alkyl tails; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Embryo, animal
(ectoderm, cell of; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Embryo, animal
(entoderm, cell of; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Polarization
(hyperpolarization, biol.; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT **Capillary tubes**
Computers
(in lab-on-a-chip system; **microfluidic** devices and use of

Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Biological transport
(ion; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT **Animal cell**
(mammalian; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Embryo, animal
(mesoderm, cell of; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT **Animal cell**
Animal tissue culture
Bacteria (Eubacteria)
Blood cell
Buffers
Cell differentiation
Cell membrane
Chloroplast
Containers
Electric potential
Flow
Fluorometry
Fungi
HeLa cell
Membrane, biological
Membrane potential
Membranes, nonbiological
Microtiter plates
Mitochondria
Plant cell
Plant tissue culture
Sensors
T cell (lymphocyte)
(microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Apparatus
(microfluidic; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Fluidization
(microfluidization; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Toxins
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(neurotoxins, transmembrane potential modulators; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Animal tissue culture
(primary; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Drugs
Molecules
(transmembrane potential modulators; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
IT Antibodies
Carbohydrates, biological studies
Chemokines
Cytokines
Hormones, animal, biological studies
Ligands
Lipids, biological studies
Neurotransmitters
Peptides, biological studies
Proteins, general, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(transmembrane potential modulators; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT Biological transport
(uptake; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT Organelle
(vesicle; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT 63560-89-4, DiBAC4(5)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(DiBAC4(5); microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT 155703-07-4, DiSBAC2(3)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(DiSBAC2(3); microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT 335080-22-3, RGA 30
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(RGA 30; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT 14808-60-7, Quartz, uses
RL: DEV (Device component use); USES (Uses)
(chip containing microchannels, in lab-on-a-chip system; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT 16969-45-2, Pyridinium
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(derivs., dyes; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT 103938-30-3, Bis-oxonol
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(dyes; microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT 288-47-1, Thiazole 23491-45-4, Hoechst 33258 23491-52-3, Hoechst 33342
61389-30-8, Oxonol V 64724-75-0, Oxonol VI 70363-83-6, DiBAC4(3)
79811-16-8, WW 781 173080-67-6, SYTO 11 173080-68-7, SYTO 12
173080-69-8, SYTO 13 173080-70-1, SYTO 14 173080-71-2, SYTO 15
173080-72-3, SYTO 16 189233-66-7, SYTO 17 211566-66-4, Hexidium iodide
235422-34-1, SYTO 59 253878-63-6, SYTO 25 286951-08-4, SYTO 62
314730-55-7, SYTO 18 335078-81-4, SYTO 40 335078-82-5, SYTO 41
335078-83-6, SYTO 42 335078-84-7, SYTO 43 335078-85-8, SYTO 44
335078-86-9, SYTO 45 335078-89-2, SYTO 20 335078-91-6, SYTO 21
335078-92-7, SYTO 22 335078-93-8, SYTO 23 335078-94-9, SYTO 24
335079-08-8, SYTO 80 335079-09-9, SYTO 81 335079-10-2, SYTO 82
335079-11-3, SYTO 83 335079-12-4, SYTO 84 335079-13-5, SYTO 85
335079-14-6, SYTO 60 335079-15-7, SYTO 61 335079-16-8, SYTO 63
335079-17-9, SYTO 64 335079-40-8, 2DS7J1
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

IT 63-39-8, UTP 71-52-3, Bicarbonate ion, biological studies 7447-40-7, Potassium chloride, biological studies 12408-02-5, Hydrogen ion, biological studies 14127-61-8, Calcium ion, biological studies 16887-00-6, Chloride ion, biological studies 17341-25-2, Sodium ion, biological studies 23593-75-1, Clotrimazole 24203-36-9, Potassium ion, biological studies 24345-16-2, Apamin 56092-81-0, Ionomycin 77734-91-9, Palytoxin 145808-47-5, Margatoxin
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Knisley; US 5995871 A 1999
(2) Krauthamer; US 5239998 A 1993
(3) Makler; US 5124141 A 1992 HCAPLUS

(4) Mallik; US 4741898 A 1988
(5) Seitz; US 4762799 A 1988 HCAPLUS
(6) Tsien; US 5661035 A 1997 HCAPLUS
(7) Tsien; US 6107066 A 2000 HCAPLUS
(8) Xu; US 5874668 A 1999

L26 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:824440 HCAPLUS
DN 134:2305
ED Entered STN: 24 Nov 2000
TI Focusing of microparticles in microfluidic systems
IN Wada, H. Garrett; Kopf-Sill, Anne R.; Alajoki, Marja Liisa; Parce, J. Wallace; Wang, Benjamin N.; Chow, Andrea W.; Dubrow, Robert S.
PA Caliper Technologies Corp., USA
SO PCT Int. Appl., 91 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-00
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 13
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000070080	A1	20001123	WO 2000-US13294	20000511 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2373347	AA	20001123	CA 2000-2373347	20000511 <--
	EP 1179087	A1	20020213	EP 2000-932435	20000511 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	AU 770678	B2	20040226	AU 2000-50158	20000511 <--
PRAI	US 1999-134472P	P	19990517 <--		
	WO 2000-US13294	W	20000511 <--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2000070080	ICM	C12Q001-00
WO 2000070080	ECLA	B01F013/00M; B01J019/00R; B01L003/00C6M; G01N015/14C; G01N027/447B; G01N027/447C7 <--

AB Methods and systems for particle focusing to increase assay throughput in microscale systems are provided. The invention includes methods for providing substantially uniform flow velocity to flowing particles in microfluidic devices. Methods of sorting members of particle populations, such as cells and various subcellular components are also provided. Integrated systems in which particles are focused and/or sorted are addnl. included. Microfluidic devices were used to detect apoptosis by TUNEL and annexin-V assays.

ST focusing microparticle microfluidic app; apoptosis detection flow device TUNEL assay; annexin V apoptosis assay particle focusing system

IT Dyes
(DNA; focusing of microparticles in microfluidic systems)

IT Cytometry
(FACS (fluorescence-activated cell sorting); focusing of microparticles in microfluidic systems)

IT DNA
RL: ANT (Analyte); ANST (Analytical study)
(TUNEL and annexin-V assay detection of; focusing of microparticles in microfluidic systems)

IT Annexins
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(V, biotinylated; focusing of microparticles in microfluidic systems)
IT Annexins
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(V; focusing of microparticles in microfluidic systems)
IT **Flow**
(capillary; focusing of microparticles in microfluidic systems)
IT Coating materials
(elec. conductive, microchannel; focusing of microparticles in microfluidic systems)
IT Heating systems
(elements; focusing of microparticles in microfluidic systems)
IT Control apparatus
(flow control regulators; focusing of microparticles in microfluidic systems)
IT Cytometry
(flow; focusing of microparticles in microfluidic systems)
IT Optical detectors
(fluorescence; focusing of microparticles in microfluidic systems)
IT **Analytical apparatus**
Apoptosis
Capillarity
Capillary tubes
Cell
Computers
Density
Electric furnaces
Electrokinetic phenomena
Flow
Fluids
Fluorometry
Force
Heating
Microparticles
Molecules
Particles
Pressure
Sensors
Velocity
(focusing of **microparticles** in **microfluidic** systems)
IT Reagents
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(focusing of microparticles in microfluidic systems)
IT Nucleotides, reactions
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(labeled; focusing of microparticles in microfluidic systems)
IT Apparatus
(microfluidic; focusing of microparticles in microfluidic systems)
IT Fluidization
(microfluidization; focusing of microparticles in microfluidic systems)
IT 146368-14-1D, Cy5, conjugates with streptavidin
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Cy5; focusing of microparticles in microfluidic systems)
IT 286951-08-4, SYTO-62
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(DNA dye; focusing of microparticles in microfluidic systems)
IT 58-85-5D, Biotin, conjugates with annexin V 9013-20-1D, Streptavidin, conjugates with Cy5 148504-34-1, Calcein-AM
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(focusing of microparticles in microfluidic systems)
IT 7689-03-4, Camptothecin
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL

(Biological study); PROC (Process); USES (Uses)
(focusing of microparticles in microfluidic systems)
IT 9027-67-2, Terminal deoxynucleotide transferase
RL: ARG (Analytical reagent use); CAT (Catalyst use); ANST (Analytical study); USES (Uses)
(focusing of microparticles in microfluidic systems)
IT 2321-07-5D, Fluorescein, conjugates with (deoxy)nucleotides
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(focusing of microparticles in microfluidic systems)
RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Altendorf; US 6067157 A 2000 HCAPLUS
(2) Goodwin; US 6049380 A 2000 HCAPLUS
(3) Gourley; US 5608519 A 1997 HCAPLUS
(4) Kessler, B; Nature 1985, V313, P218
(5) Knight; Physical Review Letters 1998, V80(17), P3863 HCAPLUS
(6) Kononenko; Journal of Chromatography 1991, V553, P517 HCAPLUS
(7) Ramsey; US 5858187 A 1999
(8) Shera; US 4793705 A 1988 HCAPLUS
(9) Watson; Cytometry 1999, V38, P2 MEDLINE
(10) Weigl; US 5972710 A 1999 HCAPLUS

L26 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:756609 HCAPLUS
DN 133:293180
ED Entered STN: 27 Oct 2000
TI The use of microfluidic systems in the electrochemical detection of target analytes
IN Kayyem, Jon Faiz
PA Clinical Micro Sensors, Inc., USA
SO PCT Int. Appl., 119 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM B01L003-00
ICS C12Q001-68; G01N033-543
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 3, 14, 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2000062931	A1	20001026	WO 2000-US10903	20000421	<--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG					
	CA 2370879	AA	20001026	CA 2000-2370879	20000421	<--
	EP 1183102	A1	20020306	EP 2000-923580	20000421	<--
	EP 1183102	B1	20031217			
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO					
	JP 2002542461	T2	20021210	JP 2000-612061	20000421	<--
	AT 256500	E	20040115	AT 2000-923580	20000421	<--
	EP 1391241	A1	20040225	EP 2003-22729	20000421	<--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY					
	AU 771571	B2	20040325	AU 2000-43680	20000421	<--
	PT 1183102	T	20040531	PT 2000-923580	20000421	<--
	ES 2213009	T3	20040816	ES 2000-923580	20000421	<--
PRAI	US 1999-295691	A	19990421	<--		

EP 2000-923580 A3 20000421 <--
WO 2000-US10903 W 20000421 <--

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2000062931	ICM	B01L003-00
	ICS	C12Q001-68; G01N033-543
WO 2000062931	ECLA	B01L003/00C6M; C12Q001/68B2H+565/629+563/113; G01N033/543K2B
EP 1391241	ECLA	B01L003/00C6M; G01N033/543K2B

AB The microfluidic system can comprise a solid support that has a sample inlet port, a first microchannel, a storage module (e.g., for assay reagents) and a second microchannel. The second microchannel may be in fluid contact directly with the detection module comprising a detection electrode, or a self-assembled monolayer and a binding ligand. The device can contain a sample handling well and a second storage well with a microchannel leading to the sample handling well. The sample handling well could be a cell lysis chamber and the storage well could contain lysis reagents. The device can contain a sample handling well that is a cell capture or enrichment chamber, with an addnl. reagent storage well for elution buffer. The device may contain a reaction module with a storage module, e.g., for storage of amplification reagents. An optional waste module can be connected to the reaction module via a microchannel. The device may contain addnl. separators, valves, waste wells, and pumps, including addnl. electrodes. The microfluidic systems may be used for amplification and detection of nucleic acids, proteins or other biochem. analytes in biol. samples or cells.

ST microfluidic system electrochem detection target analyte; nucleic acid electrochem detection microfluidic system; protein electrochem detection microfluidic system; diagnosis microfluidic system electrochem detection; lab chip electrochem detection target analyte

IT **Analytical apparatus**
(biochem.; microfluidic systems for electrochem. detection of target analytes)

IT **Flow**
Gel electrophoresis
(capillary; microfluidic systems for electrochem. detection of target analytes)

IT **Flow**
(electrohydrodynamic; microfluidic systems for electrochem. detection of target analytes)

IT Capillary electrophoresis
(gel; microfluidic systems for electrochem. detection of target analytes)

IT Micromachines
(microelectromech. systems (MEMS); microfluidic systems for electrochem. detection of target analytes)

IT **Analytical apparatus**
Blood cell
Capillary tubes
Cell
Clinical analyzers
Cytolysis
Diagnosis
Electric circuits
Electrohydrodynamics
Electroosmosis
Electrophoresis apparatus
Gel electrophoresis apparatus
Integrated circuits
Microsensors
Nucleic acid amplification (method)
Plasmids
Self-assembled monolayers
(**microfluidic** systems for electrochem. detection of target analytes)

IT DNA
Nucleic acids
Oligonucleotides
Peptide nucleic acids
Proteins, general, analysis
RNA
mRNA
rRNA
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(microfluidic systems for electrochem. detection of target analytes)
IT Ligands
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(microfluidic systems for electrochem. detection of target analytes)
IT Probes (nucleic acid)
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(microfluidic systems for electrochem. detection of target analytes)
IT Laboratory ware
(reaction vessels; microfluidic systems for electrochem. detection of target analytes)
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Clinical Micro Sensors Inc; WO 9857159 A 1998 HCAPLUS
(2) Fodor, S; US 5856174 A 1999
(3) Harvard College; WO 9831839 A 1998 HCAPLUS
(4) Meso Scale Technologies Llc; WO 9812539 A 1998 HCAPLUS
(5) Southgate, P; US 5863502 A 1999
(6) Wilding, P; US 5866345 A 1999 HCAPLUS

L26 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:493703 HCAPLUS
DN 133:86449
ED Entered STN: 21 Jul 2000
TI Optimized high-throughput analytical system and method
IN Kopf-Sill, Anne R.; Chow, Andrea W.
PA Caliper Technologies Corp., USA
SO PCT Int. Appl., 41 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-00
ICS C12Q001-68; G01N033-53; G01N033-567
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 79, 80
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2000042212	A1	20000720	WO 2000-US1268	20000118	<--
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG					
	US 6150119	A	20001121	US 1999-233700	19990119	<--
	CA 2360013	AA	20000720	CA 2000-2360013	20000118	<--
	EP 1144674	A1	20011017	EP 2000-906956	20000118	<--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO					
	JP 2002534700	T2	20021015	JP 2000-593769	20000118	<--

AU 767342	B2	20031106	AU 2000-28533	20000118	<--
US 6511853	B1	20030128	US 2000-630866	20000802	<--
PRAI US 1999-233700	A	19990119	<--		
WO 2000-US1268	W	20000118	<--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 2000042212	ICM	C12Q001-00	
	ICS	C12Q001-68; G01N033-53; G01N033-567	
WO 2000042212	ECLA	G01N027/447B4	<--
US 6150119	NCL	435/007.100; 204/400.000; 204/451.000; 205/777.500; 366/DIG.002; 422/050.000; 422/068.100; 422/081.000; 422/082.000; 435/004.000; 435/006.000; 435/007.200; 436/157.000; 436/501.000; 436/514.000	
	ECLA	G01N027/447B4	<--
EP 1144674	ECLA	G01N027/447B4	<--
US 6511853	NCL	436/514.000; 204/403.010; 422/081.000; 422/082.000; 422/100.000; 435/007.100; 435/007.200; 435/287.200; 436/517.000	
	ECLA	G01N027/447B4	<--

AB Throughput rates for microfluidic serial anal. systems are optimized by maximizing the proximity and speed with which multiple different samples may be serially introduced into a microfluidic channel network. Devices are included that include optimized parameters based upon desired throughput rates for a given set of reagents, reaction times and the like.

ST optimized throughput microfluidic analysis app

IT Materials
(biochems., test compds. effect on; optimized high-throughput anal. system and method)

IT **Capillary tubes**
(**microfluidic** channels; optimized high-throughput anal. system and method)

IT Analysis
Analytical apparatus
Diffusion
Flow
Fluids
Nucleic acid hybridization
Vacuum
Zeta potential
(optimized high-throughput anal. system and method)

IT Reagents
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(optimized high-throughput anal. system and method)

IT Polymers, uses
RL: DEV (Device component use); USES (Uses)
(substrates based on, forming microfluidic channel; optimized high-throughput anal. system and method)

IT Nucleic acids
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(test compds. effect on interaction of, with complementary nucleic acids; optimized high-throughput anal. system and method)

IT Receptors
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(test compds. effect on interaction of, with ligands; optimized high-throughput anal. system and method)

IT Ligands
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(test compds. effect on interaction of, with receptors; optimized high-throughput anal. system and method)

IT Enzymes, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PROC (Process)
(test compds. effect on interaction of, with substrates; optimized high-throughput anal. system and method)
IT Cell
(test compds. effect on; optimized high-throughput anal. system and method)
IT 7631-86-9, Silica, uses
RL: DEV (Device component use); USES (Uses)
(substrates based on, forming microfluidic channel; optimized high-throughput anal. system and method)
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Effenhauser; Anal Chem 1993, V65(19), P2637 HCAPLUS
(2) Jacobson; Anal Chem 1994, V66(7), P1114 HCAPLUS
(3) Jacobson; Anal Chem 1995, V67(13), P2059 HCAPLUS
(4) Jacobson; Anal Chem 1995, V16, P481 HCAPLUS
(5) Kopf-Sill; US 5957579 A 1999
(6) Manz; Sensors and Actuators 1990, VB1, P244 HCAPLUS
(7) Parce; US 5942443 A 1999 HCAPLUS
(8) Seiler; Anal Chem 1993, V65(10), P1481 HCAPLUS
(9) Wilding; US 5304487 A 1994 HCAPLUS
(10) Wilding; US 5498392 A 1996 HCAPLUS
(11) Zanzucchi; US 5585069 A 1996 HCAPLUS

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